

## CLAIMS

What is claimed is:

1. A method for transmitting data between nodes on a network, comprising the step of:

5 selecting a communication path by examining throughput values stored at a first one of the plurality of nodes on a network from which a link is to be established to a second one of a plurality of nodes, the throughput values indicating the reliability of a communication path between the first node and the second node.

10

2. The method according to Claim 1, further comprising the step of:

analyzing unit error rates stored at the first node to determine a gear to use for communicating with the second node, the unit error rates indicating the historical error rate for communications transmitted from the first node to the  
15 second node.

3. A method for transmitting a signal on a network, comprising the steps of:

examining throughput values stored at a first one of the plurality of  
20 nodes on a network from which a link is to be established to a second one of a plurality of nodes, the throughput values indicating the reliability of a communication path between the first node and the second node; and

analyzing unit error rates stored at the first node to determine a gear to use for communicating with the second node, the unit error rates indicating the historical error rate for communications transmitted from the first node to the second node.

5

4. The method according to Claim 3, wherein the first node compiles the throughput values by listening to each one of the other nodes broadcast throughput values for communication from each one of the said other nodes to every other node on the network.

10

5. The method according to Claim 4, further comprising the step of periodically updating the throughput values stored at the first node based on the throughput values broadcast by each one of the other nodes.

15

6. The method according to Claim 3, wherein the first node compiles the unit error rates by periodically analyzing the historical data regarding unit error rates for communications between the first node and the other nodes including the second node.

20

7. The method according to Claim 3, wherein each throughput value has a value of between zero and one.

8. The method according to Claim 3, wherein the uniform error rate is calculated as a ratio of units known to have been correctly received by a receiving node versus units known to have been received with CRC by the receiving node.

5

9. The method according to Claim 3, wherein the method is employed on a token ring.

10. The method according to Claim 3, wherein a gear describes  
10 different communication rates for communicating between the first node and the second node, wherein the gears comprised of the data packet, the error correction rate, and the speed of data communication.

11. The method according to Claim 3, wherein the method is  
15 employed on a powerline network for delivering media.

12. The method according to Claim 3, where in the presence of a high  
unit error rate, the first node will choose a gear for transmitting data having a  
lower payload-to-protection ratio since the large uniform error rate is the result  
20 of impulsive noise.

13. The method according to Claim 3, wherein in the presence of a low uniform error rate, the transmitting node will select a gear having a higher payload to protection ratio since the low uniform error rate is the result of the absence of impulsive noise.

5

14. The method according to Claim 3, wherein the method is implemented using an algorithm.

15. The method according to Claim 3, wherein the method is  
10 implemented using an integrated circuit chip.